

**REMARKS/ARGUMENTS**

Upon entry of this reply, claims 1-21 will remain pending with claims 1 and 16 being independent claims.

Reconsideration and allowance of the application are respectfully requested.

**Disclosure Statements**

Applicants note that the Examiner has confirmed receipt and consideration of Applicants' Information Disclosure Statement filed October 2, 2001 by forwarding a copy of the Form PTO-1449 submitted therewith with the Office Action. However, the form is not initialed. **Therefore, Applicants are resubmitting a copy of the Form PTO-1449 herewith, and respectfully request that a copy of the initialed form be forwarded with the next communication from the Patent and Trademark Office.**

**Foreign Priority**

Applicants express appreciation for the acknowledgment of the claim of foreign priority as well as receipt of the certified copy of the priority document.

**Response To Rejections Based Upon Prior Art**

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al., U.S. Patent No. 6,300,416, in view of Ardrizzi et al., 5,504,135, and Nakamura et al., 6,333,375.

The rejection contends that Okada discloses rubber compositions comprising diene rubber,

process oil, factice and additives typical of tire applications such as carbon black and silica. The rejection notes that Okada lacks explicit recitations of the use of factice and process oil in combination, the use of carbon black and silica in combination or the use of low PCA process oil.

Then, the rejection asserts that Ardrizzi teaches the low toxicity benefit of the use of low PCA process oils in diene rubber compositions.

Further, the rejection asserts that Nakamura teaches several benefits flowing from the use of carbon black and silica in combination with silane coupling agents in tire applications.

Still further, the rejection asserts that the primary reference suggests the use of factice and process oil in combination.

The rejection then, without making any assertions as to how the documents are being combined, contends that, “Nothing unobvious or unexpected is seen to occur from applicants combination of ingredients.”

In response to the rejection of record, Applicants initially point out that the rejection merely makes assertions concerning the disclosures of each of the documents cited in the rejection, but does not include any indication about how the documents are being combined. Thus, the disclosures of each of Okada, Ardrizzi and Nakamura are discussed, and a naked assertion is presented that nothing unobvious or unexpected is seen to occur; however, the rejection does not indicate how the separate documents are being combined, where there is motivation to combine the separate disclosure of the documents and/or how Applicants' disclosed and claimed invention is arrived at by any combination of the prior art of record. Of particular importance, the rejection must state how the primary document is being modified by the disclosures of the secondary

documents, and how any such modification is based upon motivation within the prior art without the use of hindsight.

Still further, Applicants remind the Examiner that the question is not whether Applicants' combination provides any unobvious or unexpected benefits. The question that the rejection must first address is how the prior art is being combined to arrive at Applicants' claimed invention. In the instant situation, the rejection merely makes reference to the individual disclosures of the documents, but does not set forth any statement as to how the documents are, in fact, being combined. In this regard, the Examiners' attention is directed to *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540, 218 USPQ 871, 880 (Fed. Cir. 1983), wherein the Court of Appeals for the Federal Circuit stated:

A requirement for "synergism" or a "synergistic effect" is nowhere found in the statute, 35 U.S.C. When present, for example in a chemical case, synergism may point toward nonobviousness, but its absence has no place in evaluating the evidence on obviousness. The more objective findings suggested in *Graham*, *supra*, are drawn from the language of the statute and are fully adequate guides for evaluating the evidence relating to compliance with 35 U.S.C. § 103. *Bowser Inc. v. United States*, 388 F. 2d 346, 156 USPQ 406 (Ct. Cl. 1967).

While the basis of the rejection is not sufficiently set forth in the Office Action, in an attempt to advance prosecution of the application, Applicants are submitting arguments in response thereto. However, if this ground of rejection is maintained, Applicants respectfully request that the basis of the rejection be set forth with sufficient particularity to afford Applicants an opportunity to respond thereto, whereby the next action from the Patent and Trademark Office would not appropriately be a Final Office Action.

Initially, Applicants note that, as the Examiner himself acknowledges, Okada does not

disclose process oil in combination with glycerides and/or factice or carbon black and silica in combination or any special mineral oil softeners. Although Ardrizzi discloses process oils with low PCA content in rubber mixtures, and Nakamura describes rubber mixtures with carbon black and silica, neither of these two references deals with the special problem of avoiding black marks through friction and dark stains on surfaces through extended contact of the vulcanization product with these surfaces. One having ordinary skill in the art would not have been motivated to combine either of Ardrizzi or Nakamura with Okada to arrive at Applicants' disclosed and claimed invention.

The prior art of record, whether taken alone or in any combination, does not provide any motivation for arriving at, as recited in Applicants' independent claim 1, a sulfur vulcanizable rubber composition which does not contain aromatic process oils, comprising:

at least one diene elastomer;

at least finely dispersed, precipitated silica and carbon black as fillers, said finely dispersed, precipitated silica and said carbon black being present in a weight ratio of silica to carbon black of 1:2 to 20:1;

softeners including 5 to 60 phr of at least one mineral oil softener, comprising a content of polycyclic aromatic compositions of less than 3 wt-% in reference to the total weight of the at least one mineral oil softener, determined by DMSO extract according to IP 346 method, and a glass transition temperature less than -45°C, and 1-20 phr of at least one of at least one glyceride and at least one factice; and

at least one silane coupling agent.

Still further, the prior art of record, whether taken alone or in any combination, does not provide any motivation for arriving at, as recited in Applicants' independent claim 16, a process for producing a sulfur vulcanizable rubber composition which does not contain aromatic process oils, the rubber composition comprising:

at least one diene elastomer;

at least finely dispersed, precipitated silica and carbon black as fillers, the finely dispersed, precipitated silica and the carbon black being present in a weight ratio of silica to carbon black of 1:2 to 20:1;

softeners including 5 to 60 phr of at least one mineral oil softener, comprising a content of polycyclic aromatic compositions of less than 3 wt-% in reference to the total weight of the at least one mineral oil softener, determined by DMSO extract according to IP 346 method, and a glass transition temperature less than -45°C, and 1-20 phr of at least one of at least one glyceride and at least one factice; and

at least one silane coupling agent;

the process comprising:

(a) mixing the at least one diene elastomer, the finely dispersed, precipitated silica, the carbon black, the at least one mineral oil softener, and the at least one of at least one glyceride and at least one factice, and the at least one silane coupling agent, in the absence of a vulcanization system, and, simultaneously, heating the composition to a temperature of up to 180°C; and

(b) adding and mixing a vulcanization system at a temperature below the vulcanization temperature.

The present invention provides a sulfur vulcanizable rubber composition and its process of production that is easily processed, and mixed, and which does not have the disadvantage of leaving black markings due to friction and dark discolorations on surfaces due to an extended contact of the vulcanisate with such surfaces. Additionally, the vulcanization products (rubber products), e.g., tires with a tread made from this compound, do not have disadvantageous effects on their physical characteristics, especially when compared to the products made from known rubber compositions. For example, the Examiner's attention is directed to paragraph [0007] of the originally filed application.

Still further, the Examiner's attention is directed to paragraph [0023] of Applicants' originally filed application, wherein it is disclosed:

**[0023]** Surprisingly, it has been shown that such combinations of the special mineral oil softener with glyceride and/or factice and the ratio of the silica to carbon black in rubber compositions that can be cross-linked with sulphur can be processed and mixed in a problem-free manner without aromatic process oils and, simultaneously, the vulcanized products of such compounds do not show any stain formation or undesired markings caused by friction. Moreover, the physical characteristics of the vulcanized rubber and/or vulcanization products are not negatively influenced and, to an extent, they are even considerably improved. Improvements are discernible in tires whose tread contains the vulcanized rubber composition, e.g., in rolling resistance, winter characteristics, grip on wet roads, and braking on dry roads. Surprisingly, using the special combination of mineral oil softeners with glycerides and/or factices according to the invention and the ratio of silica to carbon black, the disadvantageous reduction in the grip on wet roads due to the use of an oil having a low glass transition temperature, as commonly corresponding to the lowering of the glass transition temperature of the compound, does not occur. Moreover, the other positive characteristics resulting from a low glass transition temperature of the compounds, such as, for example, low rolling resistance, good winter characteristics, and good braking on dry roads (with or without ABS), still remain or are even improved.

Furthermore, the Examples in Tables 1, 2 and 3 and the paragraphs discussing the results of the Examples, including paragraphs [0054], [0055] and [0056] prove that one skilled in the art obtains an unexpected effect from the combination of the components as recited in Applicants' claims.

In particular, as discussed in paragraph [0054], it is discernible from Tables 1 and 2 that, within the measurement accuracy, the vulcanized rubbers made from the rubber compositions according to the invention are not inferior in their physical characteristics to the reference compounds. However, the compounds 3, 6, and 9 do not cause any markings due to friction on the surface, in contrast to their reference compounds, and no stains after an extended contact with the surface. This is only achieved according to the invention in the combination of the special mineral oil softeners with rapeseed oil and the special ratio of silica to carbon black. The sole exchange of parts of the carbon black with silica, as shown in the examples 2, 5, and 8, do not attain the object of the invention.

Moreover, as discussed in paragraph [0055], if tire treads are produced from the compounds according to the invention the tires show no brake tracks, for example. Additionally, the tires can be stored or put onto light surfaces without any problems, not causing stains on the floor. The physical characteristics of the tire are not reduced in comparison to tires made from conventional compounds.

Still further, as discussed in paragraph [0057], an improvement of the tire characteristics with respect to braking (wet) using ABS, rolling resistance, and winter characteristics could be determined in the tires with the compounds according to the invention, i.e., comprised of the

special mineral oil softeners, the rapeseed oil, and the ratio of silica to carbon black claimed.

Compared to the sole use of rapeseed oil, having an aromatic process oil and a weight ratio of silica to carbon black outside of the range of 1:2 to 20:1 according to the invention, the compounds according to the invention are therefore provided with additional advantages in their tire characteristics in addition to the avoidance of stains and markings due to friction.

For the reasons set forth above, the rejection of record should be withdrawn, and each of the claims should be indicated to be allowable over the prior art of record.

## CONCLUSION

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejection of record, and allow all the pending claims.

Allowance of the application is requested, with an early mailing of the Notices of Allowance and Allowability.

If the Examiner has any questions or wish to further discuss this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,  
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